watchful in the postoperative as well as the preoperative care.

As a preliminary to any plastic operation, all infections must be eliminated and sequestra, resulting from osteomyelitis, cleared up. Constitutional diseases, such as syphilis and tuberculosis, should be dealt with by the use of proper therapy. The ability to use instruments when possible is advantageous, as digital manipulation of the grafts leads to necrosis and favors secondary infection. Careful approximation of raw surfaces, with as little tension as possible, is important. Use fine suture material. Horsehair for cutaneous sutures is preferable. Hemorrhage should be controlled by pressure when possible, thus avoiding the necessity of burying sutures and the chances of infection.

The acid test of a plastic surgeon is his ability to form a flap in large defects, to transfer it from a distant part of the body and successfully place it in its new position. The surgeon should not be tempted to try too much at one sitting. It is better to proceed step by step and observe how nature follows the indicated way.

870 Market Street.

DISCUSSION

GEORGE WARREN PIERCE, M. D. (490 Post Street, San Francisco)—This paper has quite thoroughly covered an extensive field. The multiplicity of details of technique so essential to success in plastic surgery has of necessity been limited, but has been sufficiently described to give opportunity for that friendly difference of opinion as to procedure, which difference makes for ultimate progress in this new specialty.

We are learning daily new uses for Gillies' tubed pedicle flap. The number of step-ups of the flap seems to have no limit, and the skin and fat at the final step have retained their normal characteristics. In two cases I have transferred large flaps from the abdomen to the foot, stepping down to the thigh, then to the opposite calf, then to the foot. Where an abundant fat pad is needed this is the only method available. I have not tried Doctor de River's jump tubed flap method, as no difficulty has been found in my experience in tubed flaps as long as fourteen inches. It may have its uses, but I cannot see how the amount of blood circulating through one-fourth-inch strips of skin can have very much effect on the circulation of the pedicle. It has the added disadvantage of opening additional areas for infection, one of the greatest foes of the tubed pedicle in its first stage.

In reconstruction of the auricle, Doctor de River has not mentioned the use of cartilage as a support to the newly formed organ. Most of the reconstructed ears I have seen have had the distressing characteristic of shrinking after completion. I feel that it is more important to have two ears of the same relative size than to reproduce all the finer intricacies of structure of the auricle. With this in mind I now use a rib cartilage implant under the scalp, in a direction upward and slightly backward from the external auditory meatus. A small diameter tubed pedicle is constructed on the neck. Then an incision is made in the scalp in the shape of the proposed ear, this flap is freed and an epithelial inlay placed behind the flap. Ten days later, when the wax is removed, the flap will stand out at the angle to the head occupied by the normal ear. This flap is finally surmounted by the tubed pedicle to give the effect of the rim. This ear will not shrink and at a few paces distance has the appearance of a normal ear. Finer details of contour of the helix can be obtained by the implantation of smaller pieces of cartilage in the scalp flap.

As to the cleft palate I prefer the Brophy type of operation throughout to any other, as it most closely follows the anatomical and physiological requirements of this deformity. I do not like the Lane type of operation because it is destructive to the palatal musculature, it causes irreparable loss of tissue if unsuccessful, and it jeopardizes the palatine artery, the principal blood supply to any palatal flap, on the inverted flap side.

THOUGHT, IDEAS AND FUNCTIONAL SYMPTOMATOLOGY—AN ATTEMPT TO DISCOVER AN ORGANIC BASIS THEREFORE*

By ROSS MOORE, M. D.
Los Angeles

DISCUSSION *by Nathaniel H. Brush, M. D., Santa Barbara; Eva Charlotte Reid, M. D., San Francisco.*

THOUGHT is a real thing. It therefore must come from somewhere. It does not develop outside the human body and proceed into it. That is clear.

Thought cannot be purely a nerve cell secretion, an exudate from the central nervous system as bile is from the liver. But even if it does exude in some such psychologically fantastic manner, an ultimate origin for the materials of thought and intellection must nevertheless be sought until found if one is really an earnest seeker after the whole biologic truth.

THOUGHTS AND IDEAS

Thoughts and ideas concerning the outer world do not originate *de novo* inside us. Evidence concerning our external surroundings must reach us through our sense organs, before we can begin to think about them or include them in our circle of intellectual activities. In an exactly parallel manner, ideas concerning the inner world cannot be elaborated by the human intellect except as evidence is brought to it from all parts of the human body. At birth the organs of human intellection are so rudimentary that they only register and record somatic evidence without being able to understand what such evidence means. Thus a very young babe will cry if a pin pricks it, but is not able either to analyze the unpleasant stimulus or to locate its origin. The baby cannot think about pain, but it can react to pain stimuli.

Thinking is a definite function largely residing in the human brain and spinal cord. The neural activity which results in thought is secondary in nature, not primary. The brain and spinal cord correlate stimuli received from the outside world with those coming from the world within the human organism. The only materials of thought which the brain and spinal cord actually originate are stimuli of the same order as those which originate in all other body cells. It is reasonable to think of memory as a special product of nerve tissue, parallel in its essential biological attributes to the products of any other definitely differentiated body tissue. Thus memory might be con-

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sidered as a specialized product of nerve tissue just as suprarenalin is of the suprarenal gland.

THE SENSORIUM

For the sake of brevity, the central area of stimuli correlation and thought production will hereafter be referred to as the sensorium.

The stream of human consciousness consists of multitudinous stimuli coming into the sensorium from outside the body and other multitudes coming to the same place from inside the body. In the sensorium they come into relationship with each other and with memory pictures. The whole mobile mass is constantly analyzing itself and synthetizing itself, turning impressions into ideas, ideas into thoughts, thoughts into conclusions, and conclusions into actions.

Human voluntary activity is the visible, tangible result of human thought.

Human thought, on the other hand, is the final product of the correlation, the modification and the synthetization of primary stimuli coming to the sensorium from both inside and outside the human body.

External stimuli are easily traced direct to their origins.

Internal stimuli may also be traced to their origins by philosophical and physiological deduction. They come from every part and portion of the body and are transmitted to the sensorium by the afferent nerves. Their ultimate origin is the ultimate structure of every organ and department of the body.

Thus it becomes evident that knowledge of ourselves does not result from some mystical and unexplained function of the human brain and nerves. It comes direct from the body itself. It is an inner consciousness which doubtless is more exact than our unconscious knowledge of the external world.

For the purposes of this argument it is only necessary to trace internal impressions to their ultimate origin.

EXTERNAL IMPRESSIONS NEED NOT BE CONSIDERED

All cells of the human body have a common cellular ancestor—the primary mother cell or ovum. They inherit like potentialities, albeit some are sometimes of very rudimentary type. By reason of their long and close association together and their hereditary cooperative tendencies, every body cell is sensitive to the state of biochemical, molecular and biophysical well-being of every other cell with which it is connected either by contact or through the nervous system.

Individual cells are thus sensitive to each other, while great cell masses like the liver are constantly sending to the sensorium very definite and strong evidence of their mass condition. The general sense of well-being or ill-being, which is always present in the human personality, is merely the summation of these somatic evidences and the moulding of them into a more or less vague conscious impression.

HUMAN INTELLECTION

The argument thus far developed may be stated concretely as follows: Human intellection is a function of the human sensorium. Its primary or ultimate origin is tripartite: (1) external impressions; (2) internal impressions; and (3) memory impressions.

To continue, internal impressions constantly arrive from every part of the body, bringing to the sensorium a stream of evidence relating to bodily tone and condition. This evidence is transformed in and by the sensorium into an uninterrupted stream of somatic knowledge—a sense of the personal ego.

THE PERSONAL EGO

Bodily pain furnishes a very simple and self-explanatory illustration of the transformation of internal impressions into a sense of the personal ego. Take the pain of pleurisy, for instance. It is due to frictional irritation of inflamed pleura. Infection brings about this inflammation. Irritation develops when respiratory movement occurs where inflammation is located. Next, irritation stimuli are transmitted to the sensorium and are there transformed into evidences of pain. Finally a pain idea rises into the acute consciousness.

A less evident sequence is one discovered centuries ago and named melancholia—black bile. Possibly some future biochemist will succeed in unraveling the ultimate molecular constitution of normal and pathological bile. Then possibly the diagnosis of melancholia will be transferred from the sick room to the laboratory. The persistence of the word "melancholia" as the characteristic name by which a certain type of depression is identified is a sort of historical evidence tending to suggest that wrong liver function and mental depression are related to each other as cause and effect.

Other and less tangible sequences are easily constructed on the basis of the theory that consciousness and intellectual activity have their primary nidus of origin in the various differentiated tissues of the human body.

For example, a virgin develops the belief that she is pregnant. In such a case either one of two sequences may be present.

The first sequence is initiated by the development of a fibroid tumor inside the virginal uterus. A sense of uterine fullness results, which is at once transmitted to the sensorium. It rises into consciousness as a vague but a very real, new quality of sensation in heretofore unused sex parts. This new sensation stirs up three unusual types of memories. First, memories concerning the location of unborn babies in the mother's body (these are the result of early training and youthful observation); second, biological memories which take the form of imperious longings for motherhood; third, distorted memories arising from lack of proper information regarding how women become pregnant. Emotional confusion results and finally a pathological trend of thought is developed which, once started, runs rapidly to its inevitable conclusion—a false idea, a delusion.

It seems reasonably correct to conclude that this particular virginal delusion of being pregnant has its definite origin in a sense of uterine fullness due to the fibroid growth. Those stimuli which would have been normal from a pregnant uterus

became pathological when coming from a fibroid, and gave rise to a delusion—a false idea, when mixed with prudish sex ignorance and pseudo-moral religious repressions.

The second sequence has its origin in the fact that the virgin has a congenitally substandard ovary which never produces, and probably never has produced, a properly balanced internal secretion. She grew up to and through puberty with an incomplete or paranormal attitude toward life. Because of this faulty genetic *sine qua non,* this permanent endocrine unbalance, she approached the marriageable years greatly handicapped by faulty emotional and physical makeup. Repeated flirtatious association with the opposite sex created a pelvic congestion. Gradually a more or less chronic pelvic or uterine congestion was developed. When evidence of this uterine congestion began to arrive in the sensorium it was at once seized upon by the abnormal sex ideas already in existence, a train of thought was started which quickly developed into ideas of self-accusation and of fear. The sufferer's resistance to her pathological emotions was gradually lowered and the whole mental and emotional situation finally developed into a psychotic state or a psychosis, the central feature of which was a delusion of virginal pregnancy.

Here again it is possible and reasonable to conclude that the false idea of pregnancy in a woman who was undeniably a virgin had its primary origin in a bit of actual organic pathology—the chronic pelvic congestion originating in continued sex stimulation without satisfaction.

Examples equal in number to the total of all types of somatic delusions, hallucinations, obsessions and fancies, might be cited if time permitted and wisdom directed. They are not necessary. Sensory evidences coming from the organs and tissues of the body are the ultimate source of human mental activity. This theory, if accepted, will provide a means by which functional symptomatology may be analyzed and understood, and finally be traced to its ultimate origin.

SUMMARY

A final restatement of the theory follows: Human intellectual *function* originates from the inherent ability of body cells to communicate a sense of their own physiological condition to each other. Human intellectual *activity* results from the concentration of all these cellular communications in the sensorium where they are brought into contact with memories, both racial and acquired.

Healthy human thinking ability is the result of stimuli arising from normally functioning body cells, plus the moulding and elaborating activities of a normal sensorium, in the presence of a well-balanced store of racial and acquired memories.

Pathological human thinking develops when one or more important cell masses or organs in the body send unnatural stimuli to the sensorium. The quality of the resulting mental symptomatology depends in large measure on the type of physiological memories already stored up in the sensorium.

520 West Seventh Street.

DISCUSSION

NATHANIEL H. BRUSH, M. D. (103 East Micheltorena Street, Santa Barbara)—When Doctor Moore presented this paper before the Section of Neuropsychiatry at the fifty-sixth session of the California Medical Association he expressed the hope that the subject-matter of the paper would be productive of some general and special discussion dealing with the topics brought out.

Doctor Moore states that "thoughts and ideas concerning the outside world do not originate *de novo* inside us." But has not Doctor Moore here failed to take into account a great many of our thoughts and ideas which must originate within us? Analysis of many of our ideas concerning the outside world—broadly grouped as our instincts—will show that these thoughts can and do originate within us. The baby, to quote Doctor Moore's illustration, cannot think about pain or locate its origin. But the same baby will have little difficulty in locating and utilizing its mother's breast as a source of nourishment.

One gathers from this paper that Doctor Moore has been balked in his efforts to explain on a purely functional basis the symptoms presented by some of his patients, and has turned to an organic explanation. All well and good, but let the functional symptoms fall into their place, and let the organic fall into theirs. In the case of the virgin with delusions of pregnancy it is not entirely outside the realms of possibility that the delusions themselves expressed on the part of the virgin a wish fulfillment.

Doctor Moore also states that "pathological human thinking develops when one or more important cell masses or organs in the body send unnatural stimuli to the sensorium." If such is the case what organs or cell masses are we going to consider at fault when a schizophrenic tells us that his mind is being controlled by radio waves sent to him from a distance.

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EVA CHARLOTTE REID, M. D. (135 Stockton Street, San Francisco)—When Doctor Moore raises the question of the seat of intellection and ideation and the processes involved in their production he propounds a problem that has so far baffled all physiologists, psychologists, and neurologists. In the normal individual the sensorium is stimulated by sensations from the environment conveyed by vision, audition and olfactory, gustatory and cutaneous sensations, as well as by sensations from all the organs and parts of the body. In disease any or all of these may become pathological. In certain psychoses the individual may become completely indifferent to external stimuli and in the psychoneurosis one or more of these stimuli may be cut off or become pathological by an apparently purely psychological process.

In regard to the genesis of the psychoneurosis we know that stimulation from the environment produces through the autonomic nervous system definite organic changes which are independent of the will. Muscles stiffen in anger, retract and tremble in fear. Shame and embarrassment cause blushing. The sight and smell of food stimulates salivary and gastric secretion. Fear, anger and joy influence digestion, respiration and circulation. The researches of Crile, Sherrington, and others have shown that the emotions have a definite influence on the quality and quantity of the secretions of the ductless glands. It is therefore reasonable to suppose that an emotion existing over a long period of time may produce an abnormal condition of an organ or group of organs. The autonomic nervous system controls not only the ductless glands, but the organs which perform the functions of assimilation, conservation, destruction, and expenditure of energy and elimination of waste products. The theory of the psychoanalyst is that a functional derangement is caused by a repressed desire, fear or

anxiety, and even after the desire has been forgotten and the fear and anxiety dissipated, the disability is continued by the action of the autonomic system. Recent investigations have shown that many cases which had been diagnosed as suffering from globus hystericus have a spasmodic nervous contraction of the esophagus which interferes with deglutition.

In schizophrenia, or dementia precox, the theory of organ inferiority appears to fit the case as well as any other. The individual, having failed to develop a normal personality and being unable to meet the demands of adult life, creates a world of his own with hallucinatory and delusional experiences representing in symbolic form his wish fulfillments. As time goes on the dissociation becomes greater until he loses contact with his environment entirely as seen in the catatonic stupor. He regresses to a lower and easier level of existence, in some cases to the infantile state.

The depressions occurring in the involutional period present such a uniform picture of faulty metabolism and incomplete elimination one cannot doubt that there is an organic basis for the depressive somatic delusions which exist. Much research will have to be done before anything definite can be said on the subject.

In the psychoses associated with organic brain disease such as general paralysis of the insane, and arteriosclerotic conditions, the hallucinations and delusions are the result of degeneration of brain tissue and their character undoubtedly depends upon the location of the area involved.

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DOCTOR MOORE (closing)—This has been a very interesting paper to write. It was a difficult paper to write—difficult in that the idea to be expressed lies far back of our usual groove of medical thought.

Evidently I did not succeed very well in putting my idea into words, because the discussions of the paper, both those above quoted and those not reported, quite fail to expound the real matter. For example, Doctor Brush indicates that I "fail to take into account . . . our instincts."

On the contrary, one phase of my effort is directed toward finding the ultimate reason for our instincts. Far from not taking them into account, I rather accept them as things the origins of which are to be studied. According to the theory which this paper tries to make manifest, the instincts of all living things are the inherited results of ancestral experiences. These inherited results are real things and therefore must reside somewhere—in the brain, in the brain plus this or that organ or in the ultimate cellular makeup of brain, organ or complete soma. Possibly instincts are so complex that their ultimate seat is to be found in the total personality of the individual.

It seems easy to me to suppose that thought in all its phases is cellular in origin, and that the cells of origin of a particular type or quality of thought are the cells of the body which are particularly involved in the content of that thought.

Abortion Legalized—Russia, unafraid of experiment in government, has formed a commission for considering petitions of women who, for any cause, desire abortion. Eighty-three per centum of these petitions have received favorable action. In three years 55,320 authorized abortions have been done. In this great number there was no fatality. The operations are all free and are done in government hospitals. Within the same period the authorities of Russia learned of 66,786 abortions done by bunglers with 3000 deaths.

Not satisfied with the results of its trial of free abortions, Russia is now more actively teaching birth control and is experimenting with new methods of prevention. In all European countries there is increasing activity in teaching birth control. The United States is alone in forbidding the use of the mail to writings favorable to contraceptive methods. We, in a land of the free, practice the principle that the government must decide what the people may be permitted to know.—*Colorado Medicine.*

THE CLINICAL SIGNIFICANCE OF PULPLESS TEETH *

By J. MARK LACEY, M. D.
AND
CLAYTON R. JOHNSON, M. D.
Los Angeles

DISCUSSION *by E. F. Tholen, M. D., Los Angeles; Andrew B. Wessels, M. D., San Diego; Lloyd Bryan, M. D., San Francisco.*

IT is assumed that there is such a factor in the production of physical disability as focal infection, and that the teeth must always be suspected as a possible source. The object of this paper is to report from our personal clinical experience, the conditions under which we believe teeth should be condemned, and the results which were obtained by the procedures adopted.

BACTERIOLOGIC EVIDENCE OF INFECTION

In 1924 Dr. Russell Haden [1] of the University of Kansas Medical School reported an extensive study concerning the bacteriologic findings of pulpless teeth as compared with evidence of infection as commonly interpreted on the radiograph. His conclusions were summarized as follows:

"The incidence of infection is almost as high in the radiographic negative group as in the radiographic positive group. There is a very sharp limitation to the translation of radiographic evidence of infection into terms of bacteria.

"In many cases the radiographic negative tooth is a far greater source of systemic infection than the radiographic positive tooth, since in the former there may be little resistance to infection."

CLINICAL RECOGNITION OF INFECTED TEETH

Previous to the publication of these conclusions only the radiographic positive teeth were considered by us as active foci of infection. Such evidence, as commonly interpreted, is characterized either by absorption of, or by increased density of the periapical tissue. Pulpless teeth which did not show evidence of periapical changes on the radiograph were not sacrificed.

In our own practice the results of this procedure were only partially satisfactory. We could come to no definite conclusion clinically as to what part pulpless teeth actually did play in the production of physical disability. During the past two years our procedure has been to suspect all pulpless teeth regardless of the periapical changes on the radiograph, as well as all teeth showing extensive marginal absorption of the alveolar process.

In carrying out this procedure it was necessary to secure the absolute cooperation of a competent dentist who held similar views. Radiographs were indispensable. The majority of pulpless teeth had root canal fillings, which gave positive shadows on the radiographs. Marginal absorption was also readily demonstrated. Teeth with large fillings or crowns were considered as suspicious and were referred to the dentist for vitality tests. The gin-

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* Read before the Innominate Society of Los Angeles, March 9, 1927.